COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION

J. Aust. ent. Soc., 1980, **19**: 229-239

AUSTRALIAN AND MELANESIAN ANTS OF THE GENUS *EURHOPALOTHRIX* BROWN AND KEMPF—NOTES AND NEW SPECIES (HYMENOPTERA: FORMICIDAE)

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Abstract

Two species are described as new: *E. hoplites* (Papua New Guinea) and *E. insidiatrix* (Vanua Levu, Fiji Islands). Both are illustrated with scanning electron micrographs, as are *E. szentivanyi* Taylor and *E. emeryi* (Forel). Notes are given on distribution and variation of several previously described species.

Introduction

The myrmicine ant genus *Eurhopalothrix* (tribe Basicerotini) was established and monographed by Brown and Kempf (1960). Subsequently new species were described by Kempf (1962, 1967), Snelling (1968) and Taylor (1968, 1970). Currently 23 species are named, 12 of them Indo-Australian and 11 Neotropical. My 1968 paper and its 1970 supplement reviewed those species then known from the Indo-Australian area. In this further supplement I describe two new species, *E. hoplites* from Papua New Guinea and *E. insidiatrix* from Fiji, and present notes on various previously described species, all of them exclusively Australian or Melanesian in distribution, except the widespread S.E. Asia-based *E. procera* (Emery). Apart from *E. procera* only one species, *E. philippina* Brown and Kempf, has so far been reported from the Oriental Region. In recent years, however, a number of undescribed species from West Malaysia and Borneo have accumulated in the Australian National Insect Collection (ANIC), CSIRO, Canberra, and the British Museum (Natural History), London [BM(NH)]. These will be reviewed elsewhere.

Workers of the new species, and of the New Guinean *E. szentivanyi* Taylor and the Fijian *E. emeryi* (Forel), are illustrated with a standard set of micrographs, comprising a frontal view of the head, with dorsal and lateral views of the mesosoma and waist nodes. I prepared these using a J.E.O.L. JSM U3 scanning electron microscope. The illustrated specimens, which include the holotypes of both new species, have been gold coated for microscopy. Each has been mounted with an uncoated specimen selected to match its coloration before coating.

All measurements are given in millimetres. Abbreviations and conventions for measurements and indices follow those of Taylor (1968). Abbreviations for some institutions are indicated above; others include: GM = Museum d'Histoire Naturelle, Geneva; HNM = Hungarian National Museum, Budapest; MCZ = Museum of Comparative Zoology, Harvard University, Cambridge; NZAC = New Zealand Arthropod Collection, Entomology Division, DSIR, Auckland; USNM = United States National Museum, Smithsonian Institution, Washington.

Measures of distance and elevation, whether metric or imperial, are given as on the original data labels.

The deposition of specimens in the ANIC by Dr P. J. M. Greenslade (PJMG), Drs S. and J. Peck (S&JP), Dr P. M. Room (PMR), Dr P. S. Ward (PSW) and Rev. B. B. Lowery (BBL) is gratefully acknowledged. These collectors are indicated below by their initials, as shown above, while JEF = J. E. Feehan, GK = G. Kuschel, PNL = P. N. Lawrence, GBM = G. B. Monteith and RWT = R. W. Taylor.

Eurhopalothrix brevicornis (Emery)

New records.—PAPUA NEW GUINEA: SEPIK PROVINCE: Passam, near Wewak, *ca* 270 m; Yawasora, near Wewak, *ca* 50 m; Hayfield, near Maprik, *ca* 150 m. MOROBE PROVINCE: near Lae, *ca* 50 m; Bulolo, *ca* 2300 ft, 17.xii.1972, BBL. CENTRAL PROVINCE: 8 km S of Kokoda, *ca* 800 m; Popondetta, ii.v.1972, PMR. (All ANIC, unless stated otherwise all rain forest berlesates, collected between 1.vi.1972 and 5.vii.1972 by RWT.) SOLOMON ISLANDS: SANTA ISABEL: NE of Tatamba Raja, litter, rain forest, 30.ix.1965, PNL-Brit. Roy. Soc. Expedition [ANIC, BM(NH)]; 1,000 Ships Bay, opposite Lilihinia Island, litter, rain forest, 20.ix.1965, PNL-Brit. Roy. Soc. Expedition [BM(NH)]. NGGELA: Soso, 2.xii.1965, PJMG (acc. 20995) (ANIC). GUADALCANAL: Mt Austen, 24.viii.1965, PJMG (acc. 19285) (ANIC).

Known distribution

Rain forest habitats; mainland Papua New Guinea at least to 700 m elevation; New Britain, and the Solomon Islands of Vella Lavella, Santa Isabel, Nggela and Guadalcanal.

Variation

I have seen 36 workers and two dealate queens from the Solomon Islands, and 23 workers from mainland Papua New Guinea. The distribution of large specialised hairs on the head and mesosoma in New Guinea specimens follows that described by Brown and Kempf (1960, p. 216, fig. 45). In undamaged specimens there are four hairs in each of the two posterior transverse rows on the head and one pair straddle the mesonotum. All Solomon Islands specimens lack the lateral hairs of the cephalic series in question, and none have erect hairs on the mesosoma. The specialised pilosity is often lost in *Eurhopalothrix* specimens, but no New Guinea example completely lacks all six relevant hairs, and the other cephalic hairs on the Solomon Islands specimens are nearly always fully intact. These differences, if consistent, could indicate that specimens recorded from the Solomon Islands as *E. brevicornis* in fact represent a separate sibling species.

Eurhopalothrix australis Brown and Kempf

New records.– AUSTRALIA: QUEENSLAND: Alexandra Bay, 16 12′S, 145 26′E, <50 m; Thornton Range, 16 14′S, 145 26′E, *ca* 100 m; Black Mountain Rd, N of Kuranda, 16 45′S, 145 35′E, *ca* 430 m; Mt Tiptree, 17 03′S, 145 38′E, *ca* 730 m; Upper Mulgrave River, 17 15′S, 145 46′E, *ca* 75 m; 4 km E of Lake Barrine, 17 16′S, 145 41′E, *ca* 700 m; Lake Eacham National Park, 17 18′S, 145 37′E, *ca* 760 m; Crater National Park, 17 26′S, 145 31′E, *ca* 1000 m; *ca* 12 km SE of Millaa Millaa, *ca* 600 m; 12 km S of Ravenshoe, 17 43′S, 145 30′E, *ca* 1000 m; 20 km S of Ravenshoe, 17 49′S, 145 32′E, *ca* 800 m; Crawford's Lookout, *ca* 320 m; Lacey's Creek, 17 52′S, 146 04′E, *ca* 40 m; McNamee Creek, 17 40′S, 145 48′E, *ca* 400 m (all preceding records from rain forest berlesates, collected between 19.vi.1971 and 11.vii.1971 by RWT and JEF); near Kenilworth, 26 36′S, 152 43′E, berlesate, rain forest, *ca* 150 m, 17.iii.1973, RWT; Canungra Creek, 4 mi. S of Canungra, berlesate, rain forest, 14.iii.1971, GBM. (All ANIC.)

Known distribution

Rain forest habitats in eastern Australia, on or east of the main divide, from Alexandra Bay, north Queensland (lat. 16 12′S) to Dorrigo National Park, northern New South Wales (lat. 30°22′S). *E. australis* occupies a wide elevational range in the "base of peninsula" rain forest area of north Queensland, from which most of the above new records originate.

Eurhopalothrix caledonica Brown and Kempf

New records.– NEW CALEDONIA: Col d'Amieu, N of La Foa, litter berlesate, rain forest, *ca* 500 m, ?.viii.1978, S&JP [ANIC, BM(NH), MCZ]; Col de Mouirange, 30 km E of Nouméa, litter berlesate, rain forest near pond, *ca* 300 m, 11.viii.1978, S&JP (ANIC).

Known distribution

Known only from New Caledonia.

Eurhopalothrix punctata (Szabó)

New record.– PAPUA NEW GUINEA: CENTRAL PROVINCE: Kauai River, Manari, 9 11′S, 147 37′E, under log, rain forest, *ca* 700 m, 13.viii.1976, PSW (ANIC).

Known distribution

Mainland Papua New Guinea; previously reported localities include Madang, Stephansort (=Bogadjim, 5 26′S, 145 45′E), Hansemann Mountains (?=Mt Hansemann, 5°10′S, 145°45′E), and lower Busu River near Lae.

Note

The queen from Kunai Creek near Wau discussed as *Eurhopalothrix* sp. in my 1968 paper (p. 339) seems unlikely to be *E. punctata* as suggested there.

Eurhopalothrix biroi (Szabó)

New records.—PAPUA NEW GUINEA: MOROBE PROVINCE: near Lae, *ca* 50 m; "Timber Track", *ca* 16 km NW of Lae, *ca* 220 m; Bulolo, berlesates, rain forest, *ca* 2300 ft, 14,17.xii.1967, BBL. CENTRAL PROVINCE: 8 km S of Kokoda, *ca* 800 m; near Kokoda, *ca* 500 m; Kokoda, 22.vii.1973, PMR; Popondetta, vi.1972-vii.1973, PMR; Tagao Rd, 26.vii.1973, PMR. (All ANIC, unless stated otherwise all rain forest berlesates, collected between 1.vi.1972 and 17.vi.1972 by RWT.)

Known distribution, variation

Apparently widespread in northern mainland New Guinea; previously reported from localities near Madang or Lae, and on the Huon Peninsula.

The available specimens frequently have worn vestiture, as is usual in basicerotine ants. However the material from Central Province listed above appears consistently to have the hairs of the ground pilosity on the pronotum, petiolar dorsum and gaster much finer and less inflated than those of the material from Morobe Province. Four syntypes from the Hansemann Mts (HNM, kindly loaned by Dr J. Papp) match the Morobe Province specimens in these details.

Eurhopalothrix hoplites sp. n. (Figs 1-3)

Types.—PAPUA NEW GUINEA: SEPIK PROVINCE: Passam, near Wewak, berlesate, rain forest, *ca* 270 m, 5.vii.1972, RWT, *paratype* worker (ANIC). CENTRAL PROVINCE: Lejo Rd, near Popondetta (TYPE-LOCALITY), 9.vii.1973, PMR, *holotype* worker (ANIC, Type No. 7521).

Worker

Dimensions (holotype cited first).—TL *ca* 4.8, 4.5; HL 1.06, 1.05; HW 1.08, 1.01; CI 102, 96; ML 0.23, 0.22; MI 22, 21; SL 0.63, 0.62; SI 58, 57; maximum diameter of eye 0.08, 0.09; PW 0.72, 0.69; WL 1.17, 1.18; petiolar node width 0.36, 0.34; postpetiole width 0.69, 0.64; gastral width 0.92, 0.89.

Description.—General features as in Figs 1-3. Outer borders of mandibles feebly concave, basal tooth unspecialised. Front of head almost entirely and evenly convex, except for a slight transverse impression across the median fronto-clypeal region. Mesosomal profile broken only by slight indentations between its pronotal, mesonotal and propodeal sections. Promesonotal suture represented dorsally by a slight depression which does not break the sculpture; metanotal groove slightly more distinct. Ventral carinae of petiole not serrated. Postpetiole almost lacking a median longitudinal depression.

Head, mandibles and scapes feebly shining, with a dense, largely effaced fine punctate-rugosity, more distinct on mandibles, clypeus and scapes. Mandibular teeth minutely transversely arched-striate. Antennal fossae smooth and shining, with traces of transverse carinae posteriorly. Dorsa of mesosoma, petiole and postpetiole coarsely punctate-rugose; sides of mesosoma similar, except the mes- and metepisternites, which are smooth and shining, with a few ventral punctures. First gastral tergite generally smooth and shining, with scattered small punctures and narrow anterior and lateral strips of dense, fine puncturation. The more distal tergites similarly densely punctate. First gastral sternite more coarsely punctate, with a smooth, shining median disc. Legs almost entirely finely punctate-rugose, the sculpture partly effaced on the coxae.

Specialised erect hairs lacking except for a few on leading edges of scapes, and on gastral apex; a few on first gastral sternite, none on its tergite. Ground pilosity of dense, short, yellowish-white hairs associated everywhere with the punctate-rugose sculpturing, lacking where it is absent, except on gastral dorsum, where hairs are minute. Dense fine pubescence limited to antennal funiculi.

Rich deep mahogany-brown, appearing black to the naked eye; antennae and legs a shade lighter.

Notes

This species runs to couplet 12 of my 1968 key to the Indo-Australian Basicerotini. *E. procera* and *E. greensladei* Taylor also terminate there. Both are abundantly distinct from *E. hoplites*. They have relatively broad heads (CI 106-110 and 110-114 respectively), less evenly convex mesosomal dorsa, viewed laterally, much weaker postcephalic sculpture, and a pair of specialised erect hairs each on the verticocciput and pronotum at least.

Eurhopalothrix greensladei Taylor

New records.—SOLOMON ISLANDS: GUADALCANAL: Mt Austen, 24.viii.1965, ii.1966, iii.1966, PJMG (accs 19284, 21210, 21316, workers); Kukum, 1962, PJMG (acc. 21565, dealate queen). (All ANIC.)

Known distribution

Known only from localities near Honiara, Guadalcanal.

2. Mesosomal profile with promesonotum slightly more convex and raised a little higher above the propodeal dorsum than in the Isabel/Wagina or Vella Lavella forms.

3. Propodeal declivity divided into upper and lower portions by a transverse carina, as in other morphs. The dorsal section, however, is convex, with its surface more or less continuous with the convexity of the propodeal dorsum. In the other morphs this section intrudes into the propodeal dorsum as a depressed triangular "valley". In this feature Guadalcanal *E. isabellae* specimens resemble *E. greensladei.*

4. Sculpturation less intense than in either previously described morph. Head essentially smooth, with faint traces of punctate-rugosity. Dorsum and sides of mesosoma, petiole and postpetiole with sculpturing somewhat reduced, but probably derived from a condition like that in the Vella Lavella form. Gastral sculpturing intermediate between Wagina and Vella Lavella specimens.

The Isabel/Wagina, Vella Lavella and Guadalcanal morphs thus appear approximately to represent steps in a cline running from north-west to south-east in the Solomons, with the Vella Lavella form more or less intermediate between the other two in most features.

It is possible that these forms, along with *E. greensladei*, represent separate, closely related species in a group derived from stock close to *E. procera.* Guadalcanal *E. isabellae* specimens are generally quite similar to *E. greensladei*, though the two have very different mandibular structure, and *E. greensladei* has heavier mesosomal sculpture, more like Vella Lavella specimens of *E. isabellae.*

Eurhopalothrix procera (Emery)

New records.—PAPUA NEW GUINEA: MANUS ISLAND: Lorengau, 27.ii.1973, PMR. SEPIK PROVINCE: Pes, near Aitape, berlesate, rain forest, *ca* 50 m, 8-9.vii.1972, RWT; Yawasora, near Wewak, berlesate, rain forest, < 50 m, 4-6.vii.1972, RWT. MOROBE PROVINCE: near Lae, berlesate, rain forest, *ca* 50 m, 11.vi.1972, RWT. CENTRAL PROVINCE: Kokoda, 6.iv.1972, PMR; near Kokoda, rain forest, *ca* 500 m, 1.vi.1972, RWT; 5 mi. S of Siaho, near Popondetta, nest in rotting log, rain forest, *ca* 400 ft, 16.i.1971, BBL; Popondetta-Kokoda Rd, near summit Oivi Ridge, in rotten stump, rain forest, *ca* 1300 ft, 16.i.1971, BBL; Popondetta, 20.ix.1972, PMR; 20 mi. N of Popondetta, Bisi Cocoa plantation, nest in rotting wood on ground, *ca* 400 ft, 15.i.1971, BBL; near Dobodura, on Samboga River, nest in large rotting log, rain forest, *ca* 100 ft, 14.i.1971, BBL. SOLOMON ISLANDS: RENDOVA: 6.v.1966, PJMG (acc. 22936) (ANIC). SANTA ISABEL: Tatamba, berlesates, *Casuarina* or mixed litter, 27, 28.ix.1965. PNL-Brit. Roy. Soc. Expedition [ANIC, BM(NH)]. MALAITA: Dala, flying male, 11.ii.1965, PJMG (acc. 16654). GUADALCANAL: Mt Austen, 5.x.1965, PJMG (acc. 19476); Mt Gallego, berlesate, moss forest, *ca* 3000. ft, 1966, PNL-Brit. Roy. Soc. Expedition. AUSTRALIA: QUEENSLAND: Iron Range, ex rotting wood on ground, rain forest, 20-25.vii.1978, RWT; Cooper Creek, 16°11 'S, 145°26 'E, ground stray, rain forest, <20 m, 22.vi.1971, RWT and JEF; Thornton Range, 16°15 'S, 145°26 'E, ex rotting log, rain forest, *ca* 150-180 m, 23.vi.1971, RWT and JEF. (All ANIC.)

Known distribution, variation

Widespread in rain forest and marginal habitats; East Indies, Philippines, Melanesia, Polynesia east to the Samoan Islands, and Cape York Peninsula south to the Daintree River (*ca* 16°15 'S). The Australian records are all from low elevations (<200 m), but *E. procera* has been taken at 500 m in Papua New Guinea and at 900 m on Guadalcanal.

The material listed above confirms the general centrifugal pattern of geographical variation described by Brown and Kempf (1960, p. 228, fig. 56), except that Australian specimens have fewer erect hairs on first gastral tergite than expected. Two workers from Iron Range each have a single hair near the posterior border of the sclerite, while two others, and 18 from the Cooper Creek and Thornton Range series, completely lack such hairs.

Eurhopalothrix szentivanyi Taylor (Figs 4-6)

New records.—PAPUA NEW GUINEA: SEPIK PROVINCE: near Vanimo, ex rotting log, rain forest, *ca* 50 m, 10-11.vii.1972, RWT. MOROBE PROVINCE: Wau Gorge, worker foraging on log, midmorning, rain forest, *ca* 3000 ft, 7.i.1971, BBL. CENTRAL PROVINCE: Kokoda, nest in large log, edge of rain forest in dense rubber plantation, 1300 ft, 17.i.1971, BBL; 25.v.1972, PMR; near Kokoda, berlesate, rain forest, *ca* 500 m, 1.vi.1972, RWT; Kokoda Rd, 5 mi. S of Siaho, dense rain forest, *ca* 400 ft, 16.i.1971, BBL; Popondetta, 20.vii.1973, PMR. (All ANIC.)

Specialised hairs differentiated from ground pilosity even less strongly than in workers; occupying similar positions on head and gaster. Mesosoma of holotype badly damaged by mounting pin, bearing at least one pair of erect hairs on pronotum and two on mesocutum. This configuration confirmed by the *elegans* syntype, which in addition has one pair of hairs on the mesoscutellum.

Eurhopalothrix insidiatrix sp. n. (Figs 11-14)

Types.— FIJI: VANUA LEVU: Suene (TYPE-LOCALITY), *holotype* and 24 *paratypes*, all workers, W. M. Mann, collected in 1915-16 [MCZ (*holotype*, 10 *paratypes*), USNM (12 *paratypes*), ANIC (two *paratypes*)]; Ndelaikoro, litter, *ca* 800 m, 27.x.1977, GK (acc. 77/131), five *paratype* workers [NZAC (three), ANIC (two)]. VITI LEVU: Waiyanitu, three *paratype* workers, W. M. Mann, 1915-16 (USNM). OVALAU ISLAND: *paratype* dealate female, W. M. Mann, 1915-16 (USNM). All specimens except those from Ndelaikoro are also *types* of *Rhopalothrix (Rhopalothrix) elegans* Mann; see discussion above under *E. emeryi* (Forel) (=*elegans*).

Worker

Dimensions [holotype, smallest paratype (Suene), largest paratype (Ndelaikoro), selected by HW measurement].— TL *ca* 5.7, 5.5, 6.0; HL 1.42, 1.35, 1.49; HW 1.39, 1.36, 1.49; CI 99, 100, 100; ML 0.36, 0.35, 0.42; MI 25, 26, 28; SL 0.79, 0.78, 0.84; SI 57, 57, 56; maximum diameter of eye 0.14, 0.14, 0.17; PW 0.84, 0.82, 0.92; WL 1.62, 1.58, 1.80; petiolar node width 0.32, 0.32, 0.38; postpetiole width 0.72, 0.68, 0.80; gastral width 1.05, 1.02, 1.19.

Diagnosis.—General features as in Figs 11-14. Close to *E. emeryi* Forel, distinguished from it by the following features:

1. Larger size, with relatively broad head and long scapes.

2. Sculpturation of mandibles less coarse and more extensively developed. Clypeus and front of head almost completely coarsely rugoreticulate, linear elements restricted to a few short longitudinal costae near midline, immediately behind the clypeus.

Entire pronotum, mesonotal dorsum and basal face of propodeum generally sculptured like head, with traces of longitudinal costae near midline behind pronotum. Diagonal wavy costae somewhat similar to those of *E. emeryi* restricted on sides of mesosoma to metepisternum and propodeum. Traces of this sculpture weakly developed in the rugosity of the mesepisternum and extreme posterior parts of the sides of the pronotum. Sculpture otherwise as in Figs. The accompanying micrographs of *E. emeryi* and *E. insidiatrix* illustrate these differences very well, especially Figs 10, 11.

3. Erect specialised hairs barely differentiated at all from ground pilosity. The specimens are generally worn or encrusted with dirt or secreted material. However all hairs present in *E. emeryi*, except those adjacent to the eyes, seem to be represented somewhere in the series.

First gastral tergite lacks erect hairs in all intact specimens. The Ndelaikoro and Waiyanitu specimens have the mandibular sculpture slightly more coarse than in the Suene material. The Waiyanitu specimens each have two transverse straight rugae crossing the posterior median section of the occipital emargination. Otherwise little variation is indicated among the specimens.

Some specimens in Mann's series of both *E. emeryi* and *E. insidiatrix* have lost the postpetiole and gaster. These have been reglued to the mounting points in several cases, and at least one *E. emeryi* gaster has been incorrectly associated with a broken *E. insidiatrix* specimen. This or its complement might also have occurred with specimens not seen by me.

Female

The Ovalau female differs from those of *E. emeryi* exactly as would be expected considering the worker differences listed above; notably the sculptural features.

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[*Manuscript received* 20 *November* 1979.]